

AMENDMENTS TO THE CLAIMS

Please cancel Claims 16-34.

1 1. (Original) A superconducting magnesium diboride composite, comprising
2 a superconducting magnesium-boride phase component and a metallic phase
3 component, said composite obtainable from a porous magnesium boride preform
4 component, said preform component comprising magnesium and boron, and
5 introduction of a metallic component into said pores of said preform component,
6 said introduction with at least one of temperature and pressure sufficient to
7 infiltrate said preform, said metallic component selected from the group consisting
8 of metals, alloys and combinations thereof, said metallic component having at
9 least one of a melting point and a liquidus temperature less than about 1100°C.

1 2. (Original) The composite of Claim 1 wherein said superconducting phase
2 component has a volume fraction greater than about 19% of said composite.

1 3. (Original) The composite of Claim 2 wherein said superconducting phase
2 component comprises magnesium diboride.

1 4. (Original) The composite of Claim 3 wherein said superconducting phase
2 has a volume fraction between about 20% and about 90% of said composite.

1 5. (Original) The composite of Claim 4 wherein said superconducting phase
2 component is a multi-element phase comprising magnesium and boron.

1 6. (Original) The composite of Claim 1 wherein said metallic phase
2 component comprises a component selected from the group consisting of metals,
3 alloys and combinations thereof, said metallic phase component having a melting
4 point less than about 1100°C, and said composite substantially without degradation
5 of said superconducting phase component.

1 7. (Original) The composite of Claim 6 wherein said metallic phase
2 component is selected from the group consisting of magnesium metal and a
3 magnesium alloy, and said superconducting phase component comprises
4 magnesium diboride, said superconducting phase component having a volume
5 fraction greater than about 19% of said composite.

1 8. (Original) The composite of Claim 7 further including a non-
2 superconducting phase to enhance composite function.

1 9. (Original) A superconducting composite comprising a magnesium diboride
2 superconducting phase component and a magnesium phase component, said
3 magnesium diboride superconducting phase having a volume fraction greater than
4 about 19% of said composite.

1 10. (Original) The composite of Claim 9 wherein said superconducting
2 magnesium diboride phase is a multi-element phase comprising magnesium and
3 boron.

1 11. (Original) A composite of Claim 9 wherein said superconducting phase has
2 a volume fraction between about 20% and about 90% of said composite.

1 12. (Original) The composite of Claim 9 wherein said magnesium phase is a
2 magnesium alloy including another metallic component selected from the group
3 consisting of metals, alloys and combinations thereof, said other metallic
4 component having a melting point less than about 1100°C and said composite
5 substantially without degradation of said superconducting phase.

1 13. (Original) The composite of Claim 9 further including a non-
2 superconducting phase to enhance composite function, said non-superconducting
3 phase at least one of graphite, a metal, a ceramic, and a polymer material.

1 14. (Original) The composite of Claim 9 wherein said magnesium diboride
2 superconducting phase comprises substantially straight aligned fibers.

1 15. (Original) The composite of Claim 9 having a preformed configuration.

1 16-34. (Cancelled).